

REMARKS

In the outstanding Office Action, objections were raised with respect to the drawings and the claims. In addition, claims 1-10 were rejected as being indefinite, and claims 1-10 were rejected as obvious over Heiberg, US Patent No. 6,241,194 and Bockman, US Patent No. 6,360,996. By way of this amendment, the drawings and specification are amended; claims 2, 3, and 9 are cancelled; claims 1 and 4-6 are amended; and claims 11 and 12 are added. In light of the foregoing amendments and following remarks, reconsideration and allowance of the claims is respectfully solicited.

First, with respect to the drawings, Applicants hereby submit a replacement sheet bearing a new FIG. 3. The Examiner had requested such a drawing to show "sensors disposed on board the satellite" and the "open loop servocontrol". While these elements are clearly described in the specification, they did not have reference numerals assigned to them. By way of this amendment such reference numerals are added to the specification, with corresponding numbers added to FIG. 3. As support for such amendments is found in the original specification as filed at, for example, pages 10 and 15, no new matter is added. As for the element "Z-axis angular momentum profile", while support is provided in the specification (see, e.g., page 15), it is not a concrete element of the system for controlling the attitude of a satellite. It is a graph which represents the time variation of the angular momentum along the Z-axis. If the Examiner deems it necessary after reviewing this submission, Applicants can provide a new drawing bearing its representation. In light of the foregoing, Applicants respectfully submit the objection to the drawings should be withdrawn.

With respect to the claim objections, claim 1 has been amended in accordance with the suggestions of the Examiner and thus the objection should be withdrawn.

Similarly, with respect to the indefiniteness rejections of claims 1-10, such claims have either been cancelled or amended in accordance with the suggestions of the Examiner and thus should be withdrawn as well.

Turning to the prior art rejections, claims 1-10 have been rejected as obvious under 35 USC 103 based on Heiberg, US Patent No. 6,241,194, in further view of Bockman,

US Patent No. 6,360,996. Based on the foregoing amendments and following remarks, Applicants disagree.

By way of this amendment, the features of claim 3 have been added to claim 1. According to these features, the method of controlling the attitude of a satellite comprises a step of providing a set of secondary actuators used to achieve the offloading of the primary actuators, the secondary actuators being chosen among magnetic torquers, jet actuators, steerable reflecting ailerons or tabs. (See Specification, §35, lines 4-6 of the patent application as published for support).

Contrary to the assertion of the Examiner, Heiberg does not teach the use of magnetic-torquers, steerable reflecting ailerons or tabs. In column 3, lines 1-12 and in FIG. 2, Heiberg describes that the satellite system includes a RWA array comprising four individual reaction wheels. A reaction wheel is not a magnetic torque, a jet actuator, a steerable reflecting aileron or a tab.

Further, claim 1 has been amended by the introduction of the following feature: “*the method comprises an initialization phase during which: the secondary actuators are operated in order to generate an angular momentum in at least one direction in the (X, Y) plane for bringing the pair of control moment gyros into a configuration in which the angle (a) has a value different from 0° and 180°.*” (See paragraph 39, lines 7-12 of the patent application as published for support).

Heiberg teaches that “*rotation of the spin axes (of the CMG) can be anywhere between 0 degrees and +/- 90°*” (See column 3, lines 39-41) and that the system has “means [...] to cause the momentum vectors [of the CMGs] to change direction and act in opposite directions, the same directions and directions therebetween” (see column 4, lines 38-42).

Heiberg neither discloses nor suggests that the angle (α) has a value different from 0° to 180°.

Lastly, claim 1 has been amended in order to introduce the step of “*sending commands to the secondary actuators to modify the angle (a) between the angular momentum vectors (H1 and H2) of the control moment gyros so that said angle (a) remains within a*

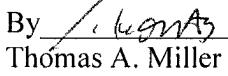
specified range that includes neither 180° or 0°.” This feature is based on lines 15-16, paragraph 49 of the patent application as published and on original claim 4.

Neither Heiberg nor Bockman teach to initialize and maintain the angle (α) between the control moment gyros momentum vectors within a specified range including neither 180° nor 0° using dedicated actuators.

In light of all of the foregoing, Applicants submit that the amended claims are patentable over Heiberg and Bockman, and respectfully request same.

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Respectfully submitted,

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